IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant	: James A. Folta	Attorney Docket	: CIL-10514
Serial No.	: 09/615,281	Art Unit	: 2125
Filed	: July 13, 2000	Examiner	: S. Garland
For	: A Dynamic Mask For Producing Uniform Or Graded-Thickness Thin Films		

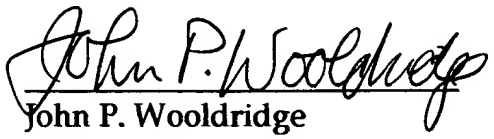
FEE AUTHORIZATION FOR FILING A BRIEF IN SUPPORT OF APPEAL UNDER 37 CFR 1.17(c)

The fee required for filing a Brief in support of an appeal is **$500**.

No fee is due for this brief because $500 was deducted on 1/5/05 from the Deposit Account for the earlier submission of the appeal brief that was deemed non-compliant.

However, if a fee is deemed required, the Commissioner is hereby authorized to deduct the required fee (**$500**) from Deposit Account 501913.

Respectfully submitted,



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Dated: August 15, 2005

PATENT

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BRIEF ON APPEAL

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This is an appeal to the Board of Patent Appeals and Interferences from the final rejection of Claims 1, 3-6 and 8-20 mailed July 30, 2004. On September 30, 2004, a timely Notice of Appeal was filed.

I. REAL PARTIES IN INTEREST

The real parties in interest are the Extreme Ultraviolet Lithography Limited Liability Corporation, the Regents of the University of California and the United States of America as represented by the United States Department of Energy.

II. RELATED APPEALS AND INTERFERENCES

Appellant knows of no other appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1, 3-6 and 8-20 are pending on appeal and stand rejected. The rejection of claims 1, 3-6 and 8-10 is appealed. Claims 2, 7 were previously canceled and claims 11-20 are canceled in the attached Amendment After Final. A copy of the claims on appeal is set forth in the Claims Appendix.

IV. STATUS OF AMENDMENTS

An Amendment After Final that was filed with the Appeal Brief that was filed 12-30-04 was not entered. A corrected Amendment After Final is attached. All other amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 is an improvement in a method for the vapor deposition of thin single layer or multilayer films on a substrate. The method provides computer control of the acceleration, velocity, and position of a mask relative to the substrate where the mask blocks a portion of deposition material directed toward the substrate to precisely tailor film thickness distribution. See the application, page 7, lines 7-18. The substrate is shown as numbers 12, 12' and 21 on figures 3, 4A and 4B, respectively. The computer is shown as numbers 32, 42 and 42' on figures 3, 4A and 4B, respectively. The mask is shown and numbers 30, 40 and 40' on figures 3, 4A and 4B, respectively. The deposition material is shown as numbers 14, 14' and 23 on figures 3, 4A and 4B, respectively.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPPEAL

Whether claims 1, 3-6 and 8-10 are unpatentable over Bruijn et al.

VII. ARGUMENT

Are claims 1, 3-6 and 8-10 unpatentable over Bruijn et al?

The Examiner states: "Bruijn expressly teaches on page 919, second column, variable velocity scanning which requires that acceleration be controlled otherwise the velocity would not vary." The applicants respectfully disagree. Acceleration is defined as the rate of change of velocity with respect to time. The reference does not teach controlling acceleration. Velocity is controlled by the instantaneous application of a required current to the mask driver. The present invention controls acceleration of the mask. As taught on page 10, line 19 through page 11, line 3, controlling mask acceleration is a means for compensating for source flux distribution.

Further, the Examiner states: "It would have been obvious to one of ordinary skill in the art to modify Bruijn to have the computer control the acceleration and velocity of mask so that it can be accurately positioned and also prevent damage to the mask and/or actuators." There is no teaching or suggestion within the reference to make this modification. Rather, the reference indicates that it is successful in producing graded thickness films and ungraded thickness films using the teachings therein. See section 4 on page 919 and section 5 on page 920. Thus, the reference does not suggest that any such modification.

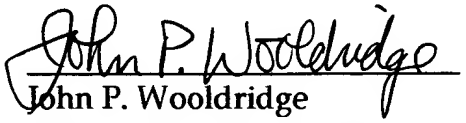
As discussed in MPEP § 2143.01, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine reference teachings. The Federal Circuit has produced a number of decisions overturning

obviousness rejections due to a lack of suggestion in the prior art of the desirability of combining references, as discussed in the aforementioned section.

The Examiner states: "Further it would have been obvious to one of ordinary skill in the art to modify Bruijn to control the deposition using the mask so that the most uniform layer with the smallest tolerance can be formed, since this is the ultimate goal in forming a uniform layer". Again, there is no teaching or suggestion within the reference to make this modification. Rather, the reference indicates that it is successful in producing the desired films using the teachings therein. Thus, the reference does not suggest the modification. Therefore the rejection of claim 1 should be withdrawn. The rejection of claims 3-6 and 8-10 should be withdrawn because they depend from claim 1.

Accordingly it is submitted that the rejection of Claims 1, 3-6 and 8-10 as being unpatentable Bruijn et al. is improper and should be reversed.

Respectfully submitted,



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VIII. CLAIMS APPENDIX

1. In a method for the vapor deposition of thin single layer or multilayer films on a substrate, the improvement comprising:

positioning a computer controlled dynamic mask adjacent said substrate to block a portion of deposition material directed toward said substrate,

moving said mask relative to said substrate, and

controlling acceleration, velocity, and position of said dynamic mask by said computer to precisely tailor film thickness distribution.

3. The improvement of Claim 1, wherein moving said mask is carried out to enable one or more of linear or rotational movement of said mask.

4. The improvement of Claim 1, wherein said dynamic mask is selected from the group consisting of a solid mask, and a mask with a shaped hole therein.

5. The improvement of Claim 4, wherein said shaped hole in said dynamic mask is selected from the group consisting of circular, rectangular, and complex shapes optimized for uniformity and deposition rate.

6. The improvement of Claim 1, wherein moving said mask is carried out to enable movement of said mask relative to said substrate selected from at least one of linear movement, rotational movement, single pass, multiple pass, partial pass, and complete pass.

8. The improvement of Claim 1, additionally including providing ~~the~~ said computer with software capable of moving said dynamic mask so as to form a film on said substrate, wherein said film is selected from the group consisting of uniform thickness films and graded thickness films.

9. The method of Claim 1 wherein the vapor deposition of thin films on a substrate is carried out by using a deposition source selected from the group consisting of ion beam sputter source, electron-beam evaporation sources, ion-assisted ion beam sputter sources, and ion-assisted electron-beam evaporation sources, and wherein said dynamic mask is moved so to produce a precisely tailored film with either uniform thickness or graded thickness.

10. The method of Claim 9, wherein the film is produced to have a uniform thickness to about 0.1% across the substrate.